

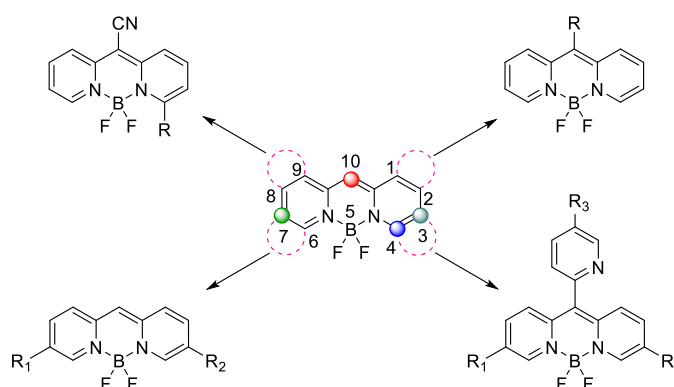


INSIGHTS INTO THE STRUCTURE-PROPERTY RELATIONSHIP OF DIFLUORO BORON DIPYRIDOMETHENE DERIVATIVES

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Tetracoordinated organoboron complexes are among the most studied families of chromophores, thanks to their excellent optical properties, which are exploited in a variety of applications, such as chemical detection biological sensing, electronics, and photovoltaic devices.¹ The introduction of the boron atom into a π -conjugated structure leads to an increase of rigidity and planarity, both enhancing chemical and photobleaching stability along with high fluorescence quantum yields and sharp, defined absorption and emission transitions. The most popular fluorescent tetracoordinated organoboron complexes are undoubtedly the 4,4-difluoro-4-bora-3a,4a-diaza-s-indacenes (BODIPYs).² Compared to the latter, difluoro dipyridomethene boron complexes (BF₂-DIPYRS) have been, so far, less explored.³⁻⁶ As part of our interest in fluorescent boron complexes, herein we report our synthetic strategies to functionalize the 3, 10, and 7 position of the aromatic core of BF₂-DIPYRS with various aryl groups. Characterization of the various symmetrical and asymmetrical mono-, bis- and trisubstituted dyes by X-ray diffraction and UV- visible spectroscopy has enabled us to establish a detailed structure-property relationship, which was supported and rationalized by *ab initio* calculation.

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